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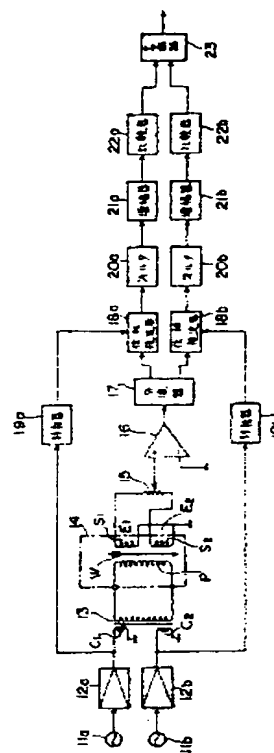
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TITLE : APPARATUS FOR DETECTING METAL



ABSTRACT : PURPOSE: To simultaneously detect both of iron and a nonferrous metal in high sensitivity by using one detection head, by using two magnetic fields different in frequency.

CONSTITUTION: Two sets of alternating magnetic fields different in frequency are generated from the transmission coil P of a detection head 14 through a drive transformer B by drive signals different in frequency from oscillators 11a, 11b corresponding to the kind of an object to be inspected and induction voltages E_1 , E_2 corresponding to iron and a nonferrous metal present in the object W to be inspected passing between coils P, S_1 and S_2 are generated respective receiving coils S_1 , S_2 of the head 14. In this case, a non-equilibrium signal corresponding to the present substances is generated from a balance circuit 15 to be separated into frequency components of respective oscillators 11a, 11b by a frequency divider 17 and iron and the nonferrous metal are respectively detected by a phase detector or a filter and comparators 18a, 20a, 22a, 18b, 20b and 22b. By this constitution, one detection head is used to simultaneously perform high sensitivity detection of iron and the nonferrous metal.

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